REMARKS

This is in response to the Final Office Action mailed May 29, 2008. Claims 7-10, 12 and 13 are pending in the application. Applicant respectfully requests reconsideration of the application based on the pending claims and the following remarks.

Rejection Under 35 U.S.C. 112

Claim 10 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Examiner contends that the term "substantially" renders the claim indefinite because "substantially" is relative language.

Applicant has amended claim 10 to delete the term "substantially" In view of the amendment, Applicant respectfully submits that the rejection under 35 U.S.C. § 112 is moot and should be withdrawn.

Rejection Under 35 U.S.C. §102(b)

Claims 7-8, 10, and 12-13 have been rejected under 35 USC § 102(b) as being anticipated by Reischl et al (US 3,714,095). The Examiner contends that Reischl et al. teach a water-dispersible polyurethane resin comprising the reaction product of polyether and polyester polyol and aliphatic diisocyanate, and that although Reischl et al. do not explicitly teach the polyurethane useful in image transfer layers, based on a composition that is analogous to the claims, the polyurethane of Reischl et al. would inherently perform as a dye transfer layer.

Applicant respectfully requests withdrawal of the rejection. Claim 7 has been amended to recite that the aqueous dye receiving coating composition comprises a blend of two distinct solvent free aqueous dispersions. Reischl et al. does not disclose the claimed invention. Rather, Reischl et al. disclose an aqueous polyurethane dispersion comprising (a) a non-salt containing polyisocyanate polyaddition product obtained from compounds containing hydroxyl and/or amino groups and organic polyisocyanates and derived from organic solution, and (b) a salt type polyisocyanate polyaddition compound derived from a solid or solution, the weight ratio of (a) to (b) ranging from 99.5:1

to 2:3. (Reischl et al., column 1, lines 24-50.) The dispersion is produced by combining the non-salt containing polyisocyanate polyaddition product with a solvent, adding the salt type polyisocyanate polyaddition compound in the form of a solid or solution, effectuating salt formation by the addition of suitable acids, removing the solvent, and adding water to the solution to achieve the desired solids content of 60 percent. (Reischl et al., column 5, lines 49-57.) It is the conversion of the polyisocyanate polyaddition product with the salt-type polyisocyanate polyaddition compound and acid that yields the dispersion. (Reischl et al., column 1, lines 50-56.) The non-salt polyisocyanate polyaddition product (a) is not solvent free and water dispersible before conversion with the salt-type polyisocyanate polyaddition compound (b) and the addition of acid. The product (a) is never itself an aqueous dispersion and the product (b) is never itself an aqueous dispersion.

Claim 7, as amended, recites that the aqueous coating composition comprises a blend of (a) a first solvent free aqueous dispersion of aliphatic polyether-polyurethane resin, and (b) a second solvent free aqueous dispersion of aliphatic polyester-urethane resin wherein the weight ratio of (a) to (b) is in the range of 1:1 to 3:1. Support for the amendment to claim 7 is found in Example 1. Attached as Appendix A are the product data sheets for NeoRez R-551 and NeoRez R-989, which confirm that each aqueous dispersion is solvent free. The claimed coating comprises a blend of two distinct aqueous dispersions. Reischl et al. fail to disclose or teach such a coating. Rather, Reischl et al. teach the combination of a non-dispersible non-salt polyisocyanate and a salt-type polyisocyanate to form a coarsely dispersed sedimenting, but redispersible aqueous dispersion. Furthermore, Reischl et al. fail to teach or suggest that the disclosed coarsely dispersed, sedimentary dispersion would possess the requisite properties to allow the composition to function as a dye receiving coating. Accordingly, Applicant respectfully requests withdrawal of the rejection of claims 7-8, 10, and 12-13

Rejections Under 35 U.S.C. §103(a)

Claims 7-8, 10, and 12-13 have been rejected under 35 USC §103(a) as being unpatentable over Ramello et al. (US 5,529,972) and Bayer Otto et al (US 3,479,310) in view of Reischl et al. The Examiner contends that Ramello et al. disclose a dye transfer coating composition comprising a water dispersible polyurethane resin and multifunctional cross-linking agent. The Examiner states that Ramello et al. cite Bayer Otto in explaining that the polyurethane resin is based on compounds which are the reaction product of linear polyether polyol, polyester, polyol, and aliphatic diisocyanate compounds. The Examiner acknowledges that while Ramello et al. and Otto Bayer teach a polyurethane having both polyester and polyether polyols in the polyurethane backbone, the amount of each polyol is not specified. The Examiner contends that Reischl et al. disclose a water dispersible polyurethane resin comprising polyether and polyester polyols corresponding to applicant's claimed amounts, and are said to exhibit improved dispersion stability and the ability to re-disperse quickly if the resin sediments. The Examiner contends that it therefore would have been obvious to separate the polyether and polyester resins of Ramello et al. in their corresponding amounts to obtain a final polyurethane that exhibits enhanced dispersion properties.

Applicant respectfully disagrees with the Examiner's contentions. Claim 7, as amended, recites that the aqueous coating composition comprises a blend of (a) a first solvent free aqueous dispersion of aliphatic polyether-polyurethane resin, and (b) a second solvent free aqueous dispersion of aliphatic polyester-urethane resin wherein the weight ratio of (a) to (b) is in the range of 1:1 to 3:1. Ramello et al. does not teach or suggest such a combination. Ramello et al. disclose a dye receiving layer that is an aqueous dispersion that includes a dye-accepting latex selected from polyurethane lattices, styrene-butadiene lattices, polyvinylacetoversatate lattices, and styrene-acrylic lattices. Ramello et al., however, does not disclose combining lattices in a dye receiving composition. The examples in Ramello et al. only employ a single latex in the dye receiving compositions, and there is no other teaching that the dye receiving composition

should include the combination of a polyether-polyurethane resin and polyester-polyurethane resin.

Bayer Otto does not cure the deficiencies of Ramello et al. Bayer Otto discloses lattices that are the reaction product of an isocyanate and a polyhydroxyl where the polyhydroxyl may be a mixture of polyhydroxy compounds such as polyethers, polyesters, and polyacetals. Such a reaction product provides a single polyurethane latex with both polyether and polyester groups on the backbone.

Reischl et al. does not cure the deficiencies of Ramello et al. and Bayer Otto. As discussed above, Reischl et al. is directed toward a single aqueous polyurethane dispersion comprising (a) a non-salt containing polyisocyanate polyaddition product obtained from compounds containing hydroxyl and/or amino groups and organic polyisocyanates and derived from an organic solution, and (b) a salt type polyisocyanate polyaddition compound derived from a solid or solution. The dispersion of Reischle being useful in the formation of fine powders for various applications such as additives to polymers, as admixtures to paints and lacquers, as additives for lubricants, and as adhesives. Reischl et al. fail to disclose, teach, or suggest the combination of two distinct aqueous dispersions

Even if one of ordinary skill in the art were to combine the polyurethane latex of Ramello et al. with the polyurethane dispersion of Reischl et al., the resulting composition would not be the coating composition of claim 7. Neither reference, alone or in combination, nor the general knowledge of those skilled in the art, teach or suggest an aqueous coating composition that is a blend of (a) a first solvent free aqueous dispersion of aliphatic polyether-polyurethane resin, and (b) a second solvent free aqueous dispersion of aliphatic polyester-urethane resin wherein the weight ratio of the resin of (a) to the resin of (b) is in the range of 1:1 to 3:1. Accordingly, Applicant respectfully requests withdrawal of the rejection of claims 7-8, 10, and 12-13 under 35 USC §103(a).

Claim 9 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ramello et al. and Otto Bayer et al. in view of Reischl et al. in further view of Rhoades et al. (US 5,082,824). The Examiner contends that

Ramello et al. in view of Reischl et al. renders obvious an aqueous dye receiving coating composition containing both polyester and polyether based polyurethane, and multifunctional cross-linking agent and that it would be obvious to include polyaziridine as the cross-linking agent in Ramello et al. based on the motivation that both compositions are water-dispersible polyurethanes that are in contact with dye compositions and polyaziridine improves the performance properties of the resulting cured coating.

Applicant respectfully disagrees. As discussed above, even if one of ordinary skill in the art were to combine the polyurethane latex of Ramello et al. with the polyurethane dispersion of Reischl et al., the resulting composition would not be a blend of (a) a first solvent free aqueous dispersion of aliphatic polyether-polyurethane resin, and (b) a second solvent free aqueous dispersion of aliphatic polyester-urethane resin wherein the weight ratio of (a) to (b) is in the range of 1:1 to 3:1.

Rhoades et al. do not cure the deficiencies of the combined teachings of Ramello et al., Otto Bayer et al. and Reischl et al. Rhoades et al. disclose a receiver sheet made up of a supporting substrate, a receiving layer on one surface of the supporting substrate, and a dye-permeable release medium coated onto the receiving layer or incorporated into the receiving layer. (Col. 3, lines 11-23.) The receiving layer of Rhoades et al. comprises a polyester resin. (Col. 12, lines 30-47.) The dye-permeable release medium of Rhoades et al. is a silicone-urethane resin that may include an aziridine crosslinking agent (Col. 3, line 62-64, col. 6, lines 7-37). The silicon-urethane is dye-permeable, not dye receptive. It is the polyester layer that receives the dye.

Even if one of ordinary skill in the art were to combine the urethane-silicon resin crosslinked with polyaziridine of the dye release medium of Rhoades et al. with the polyurethane latex of Ramello et al. as modified by the dispersion of Reischl, the resulting composition would not be the composition of claim 9. Neither the combined teachings of the cited references nor the general knowledge of those skilled in the art, teach or suggest an aqueous coating composition that comprises a blend of (a) a first solvent free aqueous dispersion of aliphatic polyether-polyurethane resin, and (b) a second solvent free aqueous

dispersion of aliphatic polyester-urethane resin wherein the weight ratio of (a) to (b) is in the range of 1:1 to 3:1.Accordingly, Applicants respectfully request withdrawal of the rejection of claim 9 under 35 USC §103(a).

Claim 9 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Reischl et al. in view of Rhoades et al. The Examiner contends that Reischl et al. teach water-dispersible polyurethane that consists of polyether and polyester based resins and multi-functional chain extender, and that it would be obvious to modify Reischl et al. with polyaziridine as the cross-linking agent as disclosed in Rhodes et al. based on the motivation that both compositions are water-dispersible polyurethanes and polyaziridine improves the performance properties of the resulting cured coating.

Applicant respectfully disagrees with the Examiner's contention. As discussed above, Reischl et al. is directed toward an aqueous polyurethane dispersion comprising (a) a non-salt polyisocyanate polyaddition product obtained from compounds containing hydroxyl and/or amino groups and organic polyisocyanates derived from an organic solution, and (b) a salt type polyisocyanate polyaddition compound derived from a solid or solution in a weight ratio of (a) to (b) from 99.5:1 to 2:3. The dispersion is produced by combining the polyisocyanate polyaddition product with a solvent, adding the salt type polyisocyanate polyaddition compound in the form of a solid or solution, effectuating salt formation by the addition of suitable acids, and adding water to the solution to achieve the desired solids content of 60 percent. It is the conversion of the polyisocyanate polyaddition product with the salt-type polyisocyanate polyaddition compound and acid that yields the dispersion. The non-salt polyisocyanate polyaddition product (a) is <u>not</u> water dispersible before conversion with the salt-type polyisocyanate polyaddition compound (b). Reischl et al. fails to disclose or suggest an aqueous coating composition comprising a blend of (a) a first solvent free aqueous dispersion of aliphatic polyether-polyurethane resin, and (b) a second solvent free aqueous dispersion of aliphatic polyester-urethane resin. Furthermore, Reischl et al. fail to disclose, teach, or suggest that the dispersion may be used as a dye receiving coating.

As discussed above, Rhoades et al. is directed to thermal transfer printing receiver sheets that include a dye-permeable release medium comprising a silicone-urethane resin that may include an aziridine crosslinking agent. Even if one of ordinary skill in the art were to modify the dispersion of Reischl by adding the aziridine crosslinking agent of the dye release coating of Rhoades et al., the resulting dispersion would not be the claimed dye receiving coating composition. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 9 under 35 USC §103(a).

CONCLUSION

In view of the foregoing amendment and remarks, Applicants respectfully request reconsideration and a timely issuance of a notice of allowance for claims 7-10, 12 and 13.

In the event any fees are due in connection with the filing of this document, the Commissioner is authorized to charge those fees to our Deposit Account No. 18-0988 under Attorney Docket No. AVERP3525USB.

Respectfully submitted,

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Product Data Sheet: NeoRez R-551

NeoRez R-551 is a co-solvent free polyurethane dispersion, for use in formulation of contact and lamination adhesives.

Typical properties

Type	co-solvent free aliphatic polyurethane dispersion
Appearance	blueish, translucent liquid
Total solids (% w/w)	35.5
pH value (25°C)	8
Viscosity Brookfield (25°C; mPa.s)	350
Volatiles	water
Neutralising agent	TEA (1.2%)
Density of dispersion (20°C; kg/l)	1.05
Freeze/thaw stability	not stable (keep from storage below 10°C)

Film properties

- Clear, water white and stable
- Excellent adhesion to a variety of substrates
- Excellent heat resistance

Recommendation for end-use

- Contact adhesives
- Industrial Laminating
- Foam/foam; foam/textile bonding
- Formulation as 1k or 2k application

Formulating guidelines

- Broad formulation window with acrylics, EVA, PU, Tackyfiers, Plasticizers and Natural rubbers
- Thickening can be readily achieved by urethane thickeners such as Collacral PU-85 (BASF)
- Addition of Crosslinker CX-100 (1-2%) or water dispersible polyisocyanate (2.5-5% Desmodur DA ex Bayer) will optimise resistance
- Formulation advice available

Safety

All relevant data have been brought up-to-date in the Material Safety Data Sheet for NeoRez R-551.

NeoRez R-551
Intro Date : May 1997
Rev. Date : May 04,2001
Print date : July 17,2005

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Technical Information

Product Data Sheet: NeoRez R-989

NeoRez R-989 is a medium hard, solvent and amine-free polyurethane dispersion for use in combination with acrylic emulsions.

Typical properties

Type	anionic, aliphatic polyurethane dispersion
Appearance	white, translucent liquid
Total solids (% w/w)	40
pH value (25°C)	8.3
Viscosity Brookfield (25°C; mPa.s)	125
Volatile	water
Neutralising agent	ammonia (0.3%)
Density of dispersion (20°C; kg/l)	1.03
Freeze/thaw stability	stable

Film properties

- Tough, medium hard and clear
- König hardness 127 sec.
- Abrasion and chemical resistance comparable to NeoRez R-974
- Humidity resistant

Recommendation for end-use

- Low VOC formulations in combination with acrylic emulsions
- Parquet and cork lacquers
- Clear lacquers and pigmented paints for panels and doors
- Industrial wood lacquers esp. in combination with NeoCryl XK-11

Formulating guidelines

- NeoRez R-989 needs addition of coalescent e.g. 4% butylglycol for proper film formation on porous substrates Small additions (1-2%) of Crosslinker CX-100 will improve chemical resistance and mechanical properties
- NeoRez R-989 is compatible with a wide range of NeoCryl acrylic emulsions
- See our guide formulations for specific information
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Safety

All relevant data have been brought up-to-date in the Material Safety Data Sheet for NeoRez R-989.

NeoRez R-989
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